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Sage Grouse in Idaho: Forum 94'



by
Samuel N. Mattise

Idaho Bureau of Land Management
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PURPOSE

The purpose of this manuscript is to document the thoughts and ideas of wildlife biologists currently working with sage grouse (Centrocercus urophasianus), addressing the population decline of this species. This was accomplished in a forum atmosphere where 25 professionals representing the Bureau of Land Management (BLM), Idaho Department of Fish and Game (IDFG), Oregon Department of Fish and Wildlife (ODFW), United States Forest Service (USFS) and the University of Idaho discussed problems associated with managing sage grouse populations in Idaho and eastern Oregon. Participants reported on the habitat condition and problems relating to the loss and conversion of sagebrush ranges from fire, mechanical and other means. They discussed population dynamics and the effects of other variables such as predation, hunting, six years of drought and poor weather conditions during hatching and brood rearing periods. Sage grouse have one of the lowest production rates of all upland gamebirds and therefore have more difficulty rebounding from declines than other upland species.

The information in this document will be delineated by IDFG regions. Discussions will address problems in the Southwest Region and the Magic Valley (West Idaho) and Upper Snake, Southeast and Salmon Regions (East Idaho).

Introduction

During the past 10 years, there has been an increasing concern regarding the decline of sage grouse (Centrocercus urophasianus) populations in Idaho. Because sage grouse are a habitat-specific species, population fluctuations can be directly attributed to quality and quantity of a single plant genus, sagebrush (Artemisia spp.). The future of sage grouse populations in Idaho depends on our ability to protect, maintain and enhance the sagebrush/grassland ecosystems needed by this species.

As settlers entered Idaho to homestead, they initiated the battle against sagebrush. As they developed farms and ranches from the native ranges, they cleared away the shrub steppe vegetation. Since that time, many techniques from burning and chaining to herbicide spraying have been used to convert sagebrush ranges to grasslands or for agriculture. By the early 1960's, it was a common practice on both private and public lands to reduce or eliminate sagebrush to enhance grass production. Generally, decreases in sage grouse populations coincide with the decreases in sagebrush ecosystems.

Idaho, Montana, and Wyoming generally form the core of sage grouse habitat in the United States. In 1968, these three states

accounted for over 70 % of the total sage grouse harvest. In 1968, Idaho harvested approximately 80,000 birds and 10 years later harvested approximately 90,000 birds (Upland Game Management Plan 1991-1995). The average harvest for 1991-1994 was approximately 25,000 birds per year. With the continuation of habitat loss due to conversion, fire and other factors, we are faced with continuing declining populations throughout Idaho.

West Idaho Population Analysis

Southwest Region

Biologists working in western Idaho are very concerned over the decreasing populations in this area. The changes in hunting regulations have been politically influenced instead of biologically driven. The variation in season bag limit of one per day and one in possession after the first day for 1984 equated to approximately .06 of a bird per bag. The 1994 bag limit of three and six had the same result of .06 of a bird per bag. From 1992-1994, there has been extreme variation in production as indicated by wing data. Correlated with six years of drought and other unfavorable weather factors during nesting and brood rearing periods, annual production has suffered. The number of males per lek has been declining steadily over the past five years.

Magic Valley Region

Sage grouse populations have declined dramatically in this area. Lek counts averaged 35 males per lek from 1965-1983. Compared to 10 males per lek for the period 1991-1994. Cassia, Twin Falls (north) and Minidoka counties had 114 historic leks, only 15 are now active (being used). Another indication of the decline is in the Shoshone area. There were 18 active leks in 1960, 15 in 1980 and 8 in 1994. In south Twin Falls county (Jarbidge Resource Area-BLM) there are 147 historic leks. Between 1992-1994, 96 leks were visited with 69 inactive, 14 active and 13 moved/new. On lek routes surveyed by biologists in the Jarbidge Resource Area - BLM, 50% of the leks are declining and 50% are remaining stable.

Another indication of the declining population, is the harvest data which normally are only collected on opening weekend. Approximately 70 % of the annual harvest occurs on these two days. If ,however, the weather on opening weekend is inclement, there will be a smaller number of hunters in the field and a smaller number of birds harvested.

Data collected at 10 check stations indicated that hunter success has varied from 2400 birds per year and 5 hours per bird between

1965-1979, 1800 birds per year and 10 hours per bird between 1980-1990 to 870 birds and 12 hours per bird in 1994. Sage grouse harvest data at the Brown's Bench Check Station indicated a 90% decline from 2832 birds in 1950 to 38 birds in 1984 then increasing to 208 birds in 1992. During this period, the hunting season changed from two days in 1950 to 21 days in 1992.

Production has hit the bottom over the last 7 years due to the extensive drought, conversion and loss of habitat and unfavorable weather conditions during brood rearing periods.

EAST IDAHO Population Analysis

Southeast and Upper Snake Regions

Sage grouse populations are continuing to decline in eastern Idaho. This long term decline is due to the drought and habitat loss which affects the survival and recruitment of juveniles into the base population. There has been good participation from hunters in collecting data at check stations. From the data collected, there are fewer hunters, harvesting fewer birds and the hours per bird has increased dramatically. Lek monitoring data on areas such as the Little Lost, Medicine Lodge and Sand Creek areas have indicated a decline in the populations. On the Birch Creek leks, there are only birds on the lower route. All leks on the upper route have been abandoned. Some leks have moved and some new leks have been established. Counts are very sporadic and the actual number of active leks is unknown.

Production has decreased throughout the area. During the mid 1970's, young-adult ratios were 225 young to 100 females and this was considered to be a stable population. Usually, this was surpassed four out of five years. Today, this ratio is attained only one out of five years. In the early 1960's, there were two (summer and winter habitat) and three stage (spring, summer and winter habitat) migratory populations. Due to habitat loss from conversion and fragmentation, these same populations are now non-migratory.

Salmon Region

In the Lemhi and Pahsimeroi areas, sage grouse populations seem to have stabilized. These mountain to valley populations are characterized by lek counts averaging 10 to 20 males. There has been no extreme habitat loss, but brood trend routes have not been established and production trend is not known. Hunter success is usually unpredictable throughout the area. In a

typical response from high elevation populations, no long-term trends have been substantiated.

Southeastern Oregon Population Critique

There are several differences in the sage grouse habitat variables between the two states. The three counties in southeast Oregon have a very low human population density with very little private land. This area is not conducive to large agriculture projects because 80% of each county is public land and water for agriculture is limited. Livestock grazing generates the economy for these counties. Currently, loss of sagebrush and fragmentation or conversion of sage grouse habitat is not a problem in this area.

Sage grouse populations appear to be self sustaining in southeast Oregon. This large area of shrub steppe habitat has not changed much since the 1950's. Wildfire and the invasion of undesirable species such as tumble mustard, Russian thistle, knapweed and cheatgrass have added some minor differences but are not extensive. Overall, habitat seems to be relatively secure across the entire area.

In 1993, 84 leks were visited with an average of 46 grouse per lek. This average has not changed significantly since the 1950's. Brood routes are run once yearly and there is a large variability between years. Predation seems to be the key factor affecting population dynamics in this area. Ravens seem to be the major predator influencing nesting success. Overall, productivity has been relatively low and appears to fluctuate with major changes in predator abundance. However, there has been no significant trend in productivity over the past 20 years.

Habitat Description and Condition: Past and Future

The major factors affecting sage grouse habitat are fragmentation and degradation of crucial habitat. This involves the loss of native forbs, grasses and shrubs and the conversion of sagebrush habitat to agriculture or grasslands. In some areas such as the Lidy lek route in southeast Idaho, a large percentage of the habitat has been converted to agricultural making the transect unusable. The increased use of herbicides and pesticides is also having an affect on habitat quality and population productivity.

Wildfire and prescribed burns have had a detrimental effect on quality and quantity of crucial habitat. Approximately one million acres of sagebrush habitat have been converted to

grasslands due to fire activity. In the past, thousands of acres of crested wheatgrass (Agropyron cristatum) seedings have been established in southern Idaho.

Specialists working for land management agencies have little experience planting native species and many rehabilitation projects using native species have not been successful. In a time when project funding is scarce, agencies are more comfortable using exotic species such as crested wheatgrass that are adaptive and easily established on arid lands. Another major problem is that native grass seed is very expensive. Today's market is not extensive enough for seed companies to produce native seed and seed of many native species are not commercially available. Procurement regulations require that seed be certified as weed free which is impossible for many native grasses such as squirreltail (Sitanion hystrix), needlegrass (Stipa spp.), native bluegrass (Poa spp.), Idaho fescue (Festuca idahoensis) and junegrass (Koelaria spp.). Planting guidelines which include soil moisture, depth, soil bed preparation, soil treatment and seed treatment are unknown for many native grasses. The native species that are available include bluebunch wheatgrass (Secar and Goldar), Indian ricegrass (Nezpar) thickspike wheatgrass (Critina) and basin wildrye (Magnar).

A more difficult problem is maintaining a perennial forb component in the habitat. This problem is confounded by the lack of native forb seed that will grow in a 6-10 in. precipitation range. Species that may be potentially suitable include buchwheat (Eriogonum umbellatum), hawksbeard (Crepis spp.), lupine (Lupinus spp.), phlox (Phlox aculeata) and milkvetch (Astragalus spp.). Seed for these and other suitable species is either unavailable or too expensive exceeding \$40.00 per pound. Again there is a lack of experience with planting techniques and a lack of information regarding successful projects when mixed with other species. Two native species available commercially at a reasonable price are arrowleaf balsamroot (Balsamorhiza sagittata) and western yarrow (Achillea millefolium).

On private land, herbicides and pesticides are being used and large tracts of sagebrush steppe habitat have been converted to agricultural lands. Some federal agencies had cost share programs to fund sagebrush spraying projects on private lands. The NEPA process seems to be shortened for these projects and not all concerned parties are notified. In some areas, the Idaho Department of Fish and Game and the Soil Conservation Service are working with landowners to preserve some of the remaining sagebrush habitat. We must strive to get landowners more involved in habitat management which considers the welfare of sage grouse. Most landowners don't completely understand the extreme impacts that some projects may have on their land.

Wildfire and arson fire have been a major cause in the loss of the sagebrush component in sage grouse habitat, most notably in the low elevation areas of the Snake River Valley. Large tracts of land formerly in native habitat are dominated by exotic annual grasses. North of Emmett, Idaho, the Squaw Butte Fire Complex burned over 200,000 acres in 1986. Even after an extensive rehabilitation program, the area is dominated by medusa-head wildrye (Taeniantherum caput-medusae). Other areas such as the Bennett Hills (north of Glenns Ferry, Idaho), which is an important sage grouse wintering area, has had 70,000 acres burned in the past 10 years. These burned areas are now dominated by cheatgrass (Bromus tectorum). Over 500,000 acres in the Jarbidge Resource Area of the Lower Snake River Ecosystem have been converted to either crested wheatgrass seedings or cheatgrass due to wildfire. BLM has taken legal action to recover the cost of fire suppression when arsonists are caught, but this does nothing toward restoring lost habitat. In 1993 alone, costs were recovered on three arson caused fires. The damage, however, was done and large stands of sagebrush were destroyed.

The increased use of public lands for recreation is having an impact on habitat quality. In sensitive areas BLM has closed various portions to all wheeled vehicals including mountain bikes. These areas are patrolled and citations are given to people riding in closed areas. Other sensitive areas, such as the Bruneau Desert, are very flat and open which makes it difficult to manage for ORV use. Hunters, ranchers, hikers, sightseers and arrowhead collectors are traversing through sagebrush stands. Due to the fragility of the soils, a few trips through an area and a new trail is formed. Due to shrinking enforcement budgets and increased popularity, off-road vehicle use will be harder to control in the future. We must address this problem today before it gets beyond our control.

One weakness of the management agencies and the private sector is livestock management during drought. We have poor strategies for protecting important brood rearing habitat during severe drought conditions. Riparian areas, springs and seeps are not being managed to provide vegetative recovery and enhancement. Many planned treatments for livestock grazing do not consider the effect of the treatment on riparian habitat especially under drought conditions. We need to meet with the land users and work together to set standards for acceptable utilization rates for riparian vegetation. How can we restore habitat conditions, when we don't know how to manage the remaining habitat we have left? We must take a more aggressive attitude to improve our knowledge of factors affecting sage grouse populations and the overall condition of their habitat.

RESEARCH PROJECTS: Past, Present and Future

Considerable research on sage grouse has occurred over the last 15 years in Idaho. Past research involved the reintroduction of sage grouse into the Sawtooth Valley. This study is now looking at the effects of fire on the those reintroduced populations. Another project in Curlew Valley addressed the effect of land management practices on sage grouse movement and habitat use.

A new project in the Upper Snake River Plain will consider how changes in landscape ecology affect distribution, movement and productivity of sage grouse populations. The GIS (geographic information system) lab at Montana State University will be providing valuable data for this project. Another new project will address overall range condition and the reduction of vegetative diversity in southwest Idaho and how it has affected sage grouse productivity. This will be a cooperative effort involving federal and state management agencies and private land owners. A research project was also initiated in the Shoshone Basin in south central Idaho. This project involves radio telemetry and considers nesting habitat, nesting success, sage grouse movements, brood habitat use (habitat used vs. availability) and distinctive trends in habitat quality. A cooperative project designed to develop a habitat suitability index also has been initiated. This model will look at variables and their influence on the sage grouse populations. This HSI should be completed in 1995.

Research must be conducted to standardize aerial survey techniques for monitoring leks in inaccessible areas. Aerial surveys are often conducted differently and data cannot be compared. Searching for leks on the ground is very time consuming and large areas cannot be covered very efficiently. The use of aircraft is necessary to document activity on old leks, locate new leks and identify satellite leks.

Many questions must be answered regarding the declining sage grouse populations in Idaho. First we have to look at what has been and is being done and then fill in the data gaps. How many acres of suitable habitat per sage grouse or per population are needed? Are the present populations healthy or are they remnant due to habitat degradation or loss? We must preserve large blocks of habitat and reestablish those components necessary to sustain viable populations within these blocks.

We know that loss and fragmentation of sagebrush steppe habitat is detrimental when such losses reach certain levels. Exactly, at what level loss begins to affect sage grouse significantly has not been defined nor do we know how many acres of habitat are needed to sustain a viable population.

SUMMARY

During the forum, many problems and needs associated with declining sage grouse populations in Idaho were identified. Some of the major obstacles included:

1. The fragmentation of existing stands of sagebrush habitat.
2. The conversion of habitat to agriculture and/or grasslands.
3. The degraded condition of remaining sagebrush steppe communities.
4. The need to monitor the effects of herbicide spraying.
5. The need to standardize population monitoring techniques.
6. The need to educate the public on the necessity to preserve existing stands of sagebrush and the fact that sage grouse may become federally listed.
7. The need to correct conflicts between existing management plans and the implementation process.
8. The need for a data base to review the effectiveness of management techniques and their effect on sage grouse habitat.
9. The cumulative impacts of various management actions on sage grouse, over time and area.
10. Existing sage grouse habitat guidelines may not be effective and have not always been followed.

Discussions centered around many topics and the need to work together to better ascertain the requirements for this species. As land managers, we must decide what a minimum and optimum sage grouse population will be accepted. How much habitat is needed for winter, during nesting and brood rearing to reach these goals? Since approximately 50% nesting occurs within one mile of leks, we must protect and enhance the habitat around lek areas. We must abandon the attitude to manage habitat and wildlife populations for minimum requirements because this takes out the resiliency of a species to maintain itself following uncontrolled stress factors such as weather, wildfire and disease.

The two things that drive sage grouse populations are nesting success and fall recruitment. We must conservatively manage the habitat that we have left and enhance and restore habitat where we can. We may not be able to improve that habitat that has already been lost in the "Sea of Cheatgrass", but we must be tenacious in our protection of what we have left. When we develop strategies to address these management problems, the public must be involved in the initial stages and kept informed. Some of the strategies that were considered were:

1. A policy is needed to address the use of prescribed burns and the continued loss of existing sagebrush stands.

2. The desired landscape features for optimum sage grouse habitat must be identified and managed for.
3. We must take a multiple species approach in managing sagebrush ecosystems.
4. We must develop a common data base that can be accessed by all agencies and used as a clearing house for information to enhance and manage sage grouse and their habitat in Idaho.
5. We must prioritize remaining sagebrush habitat by importance and take steps to protect and improve the best remaining habitat.

Sage grouse populations continue to decline as sagebrush steppe habitats are lost. Biologists from states such as Wyoming, Colorado and Idaho are reporting major declines in harvest and lek counts. The many acres of prime sagebrush habitat that provides for Idaho's sage grouse populations are diminishing through the effects of wildfire, drought and conversion for other uses. It may be too late to stop the declining trend in many areas and this species may soon become a candidate for listing like the mountain quail. Through the cooperative effort of the private landowners, and all state and federal land management agencies, we must take a more aggressive attitude to protect, enhance and improve the remaining sage grouse habitat and intensify the management of declining populations.

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